ESSENCE DATA ACCESS

The ESSENCE web site opening page can be found at the following URL:
https://secwww.jhuapl.edu/Essence/Clusters/worldratio.htm
NOTE: URL, username, and password must be entered exactly as shown: case sensitive.

STEP-BY-STEP PROCESS FOR USING ESSENCE DATA

Method A: using the alert web page to find only those groupings (and bases) with alert ratios greater than 1 (see Dictionary below for "ratio").
1. Access web page using the URL listed above. (You might want to bookmark the page.)
2. Scan the right column for your base
   NOTE 1: All DoD bases/MTFs with ratios greater than 1 for specific syndrome groupings are listed in descending order, with the highest at the top.
   NOTE 2: Your base will not appear on this page if you don't have any syndrome groups with a ratio over 1.
3. Click on your base and view the graph
4. Determine whether a peak warrants further investigation. See "Factors to Consider" section below.
5. Ask for help as needed:
   a. If a non-urgent question arises, send an e-mail to essence-afhub@brooks.af.mil. This mailbox will be checked daily on duty days.
   b. If an urgent question or concern arises (e.g. about a high count identified in ESSENCE or in any other surveillance tool your MTF is using), contact the Epidemiology Services Branch at DSN 240-3471 or COMM (210) 536-3471. After normal duty hours call 1-888-232-3764 and ask for the epidemiologist on call.
6. Be sure to check for other "alert" graphs for your base.

Method B: Scanning all your MTF's graphs
1. Access any one of your base's ESSENCE graphs
   a. Use the links imbedded in the "ESSENCE MAJCOM" spreadsheet. (Each MTF will receive this spreadsheet. Contact AFIERA/RSRH if you don't have it.)
   b. Use the ESSENCE opening "ratio listing" page and find an entry for your base.
2. View the graph.
3. Scroll through your MTF's graphs by clicking on the graph itself.
4. Continue with steps 4& 5 above.

Factors to consider when deciding if the data are telling you something important:
1. What is the total number of cases? The higher the number, the more potential impact. **Keep in mind that these are "counts" not rates so there are numerous reasons for variation unrelated to an outbreak.**
2. What is the "ratio"? The higher the ratio is, the greater the deviation from the baseline. Ratios under 1.5 are probably of little significance, but take a look at your base's graphs until you feel comfortable.
3. What syndrome grouping are you looking at? A small number of cases in the "COMA" category may be more significant than a few cases in the "GI" category.
4. Consider factors that may indicate this "spike" is not due to disease patterns:
   a. Look at calendar. Are there unusual days, such as holidays, exercises, etc. that are skewing the counts.
   b. Are there new providers who may have different coding habits? Or perhaps a visiting consultant who generated more than the usual number of codes that day?
   c. Was there a change in the denominator? Was there a busload of touring retirees or some other reason for more people to be seen?

   d. Was there a significant increase (change) in appointment availability allowing for more visits than previously?
   e. Did providers just attend a coding class, the MTF just hire a professional coder, or some other reason for coding practices to change?
5. What specific codes make up the "spike"? Get information on the specific codes making up your "spike". Historical trends for those codes would be handy for comparison.
      NOTE: A break-out of the codes that make up the "spike" is available from a number of sources. If you cannot get at this information locally using Business Objects of CHCS ad hoc reports, contact AFIERA/RSRH for assistance.
6. Ask providers if they noticed an unusual high incidence or concern. But be aware that an individual provider will probably only have knowledge of a subset of the information; he/she may not have the generalized perspective of seeing all the data together.

BACKGROUND OF ESSENCE:

The Electronic Surveillance System for the Early Notification of Community Based Epidemics (ESSENCE 1) was developed in 1999 by the DoD Global Emerging Infections Surveillance and Response System (DoD-GEIS) in response to its mandate under Presidential Decision Directive NSTC-7 on emerging infections. ESSENCE started with a goal of establishing a sensitive, specific, timely, standardized, flexible health indicator surveillance system for the National Capitol Region (NCR). ESSENCE has focused on the transparent acquisition, analysis, and dissemination via secure web site of aggregated daily Ambulatory Data System (ADS) data from about 104 MHS primary care clinics and emergency rooms in the NCR. In the wake of 11 September, ESSENCE expanded to include ADS data from 413 DoD Medical Treatment Facilities. ADS data from 121 Army, 110 Navy, 80 Air Force, and 2 Coast Guard installations are processed daily. At the present time, data from all MTFs are visible to all users. In the future this might become restricted to your base or geo-cluster only.

IMPORTANT NOTE: There are some items that need to be addressed, such as some geographic "cluster" groupings and the "user friendliness" of the web page. The calculations used for identifying an "alert" will be adjusted over time as experience accumulates. The inclusion of certain ICD-9 codes used to define each "syndrome grouping" could be argued. DoD-GEIS was not staffed to respond to MTF-specific questions from throughout DoD. Please bear in mind that this is a work in progress, and feel free to forward any questions or suggestions to AFIERA/RSRH.

Strengths:
1. Available right now; methodologies have evolved over 2 years
2. "Free": data are presented for you
3. DoD-wide, so all MTFs are included. (MTFs are grouped in geographic "clusters". A significant peak may be noticed for a cluster or for a specific MTF within the cluster.)

Weaknesses:
1. Based on ambulatory codes
      a. may not be timely (depends on internal business practices of each MTF)
      b. may not be accurate (but general categories should hold true)
2. Code lists are broad (arguable; could be considered a strength)
3. "Drill down" data not readily available; need to access different data source for this
4. DoD-level so it may be difficult to customize to one's liking (e.g. code groupings, web displays)
5. Not very sensitive
6. As yet does not include all groupings required by AFMOA/CC

METHODS:

Each night at around 0300 EST, ESSENCE extracts all ADS data submitted from all MTFs throughout DoD. For each ADS-coded visit, these records include an ICD-9 code, the date the visit occurred, the MTF, and several other pieces of information. Each of these records is tabulated by MTF, date, and "syndrome group".

These procedures are performed anew daily for each MTF and for each ESSENCE-defined geo-cluster. The total count of visits for a particular day is compared to a threshold calculated from that particular MTF's or cluster's historical experience (see "ratio" in the dictionary section). When the count exceeds the threshold, that MTF and syndrome group is posted on the ESSENCE opening web page.

It is possible that an ADS record finally is entered on Friday, say, for a visit that occurred on Tuesday, or several days *after* the visit occurred. It may be that this "late" ADS record pushes the MTF count for a day several days ago over the threshold. So you may see an "alert" that is several days old. This is NOT a result of an ESSENCE-induced time delay, but rather a result of delayed data entry at the MTF.

ADDITIONAL NOTES:

Consultation is available from the Epidemiology Services Branch directly. MAJCOM staff should be consulted for issues that may require a significant commitment of resources, such as on-site outbreak investigation assistance.

Epidemiology Services Branch personnel may contact the base Public Health Officer for further information regarding "peaks" identified by ESSENCE. This is meant to assist the base PH staff in identifying potentially significant events and to gain "corporate experience" in understanding these information sources and how to improve them.

ESSENCE or other DoD staff may contact Epidemiology Service Branch staff for additional information about a "spike". Examples include Army or Navy inquiries about AF MTFs within a geo-cluster which includes an AF installation. Additional information will then be solicited from the pertinent MTF.

MTFs should ensure that PH staff are aware of ESSENCE data and that internal processes are in place to use ESSENCE and/or other similar data daily.

The use of other data sources for additional information is encouraged. The Epidemiology Services Branch staff will work with ESENCE staff to develop syndrome groupings that are in line with the AFMOA/CC letters directives. Timelines are not available yet.

Epidemiology Services Branch contact information:
AFIERA/RSRH
2513 Kennedy Circle
Brooks AFB, TX 78235
DSN 240-3471
COMM (210) 536-3471
e-mail: essence-afhub@brooks.af.mil
web page: https://pestilence.brooks.af.mil
after hours contact: 1-888-232-3764, ask for the epidemiologist ("RSR division duty officer") on call

EXPLANATORY INFORMATION

ESSENCE opening page (see Figure 1):
Currently the opening web page has 7 columns:
1. "prev6wksmean": "Previous 6 weeks mean" is the mean of the number of visits coded within a specific syndrome grouping, that occurred on the specific day of the week of interest, for that particular MTF, over the 6 weeks preceding the day in question.
2. "plus2std": "Plus 2 standard deviations" is the mean calculated for column one plus 2 standard deviations (the standard deviation is calculated from those same 6 data points).
3. "numofem": This is the number of visits reported for the day in question.
4. "DATE": This is the date on which the number of visits in column 3 ("numofem") was reported.
5. "ratio": This is "numofem" divided by "plus2std". If the count for a particular day is the same as the mean-plus-2-standard-deviations (calculated from the previous 6 weeks), the ratio will be 1. So any value over 1 indicates a count that is higher than would be expected 95% of the time.
6. "Grouptype": "cluster" means a grouping of colocated MTFs, within about a 100-mile radius. "Subcluster" means an individual MTF.
7. "hyperlink": this link sends the user to the graphic representation of the data.
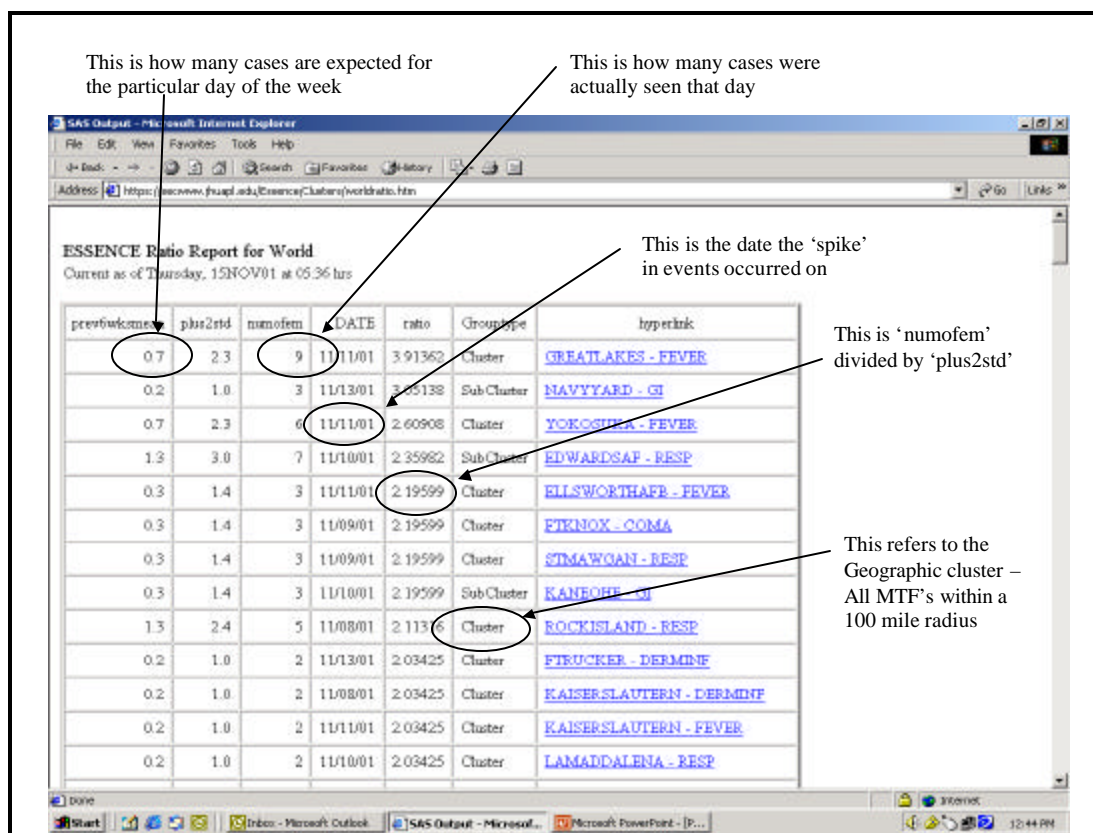

Figure 1

Clicking on a "hyperlink" gets you to the MTF-specific, "Syndrome group"-specific graphic presentation of the data (Figures 2 & 3):
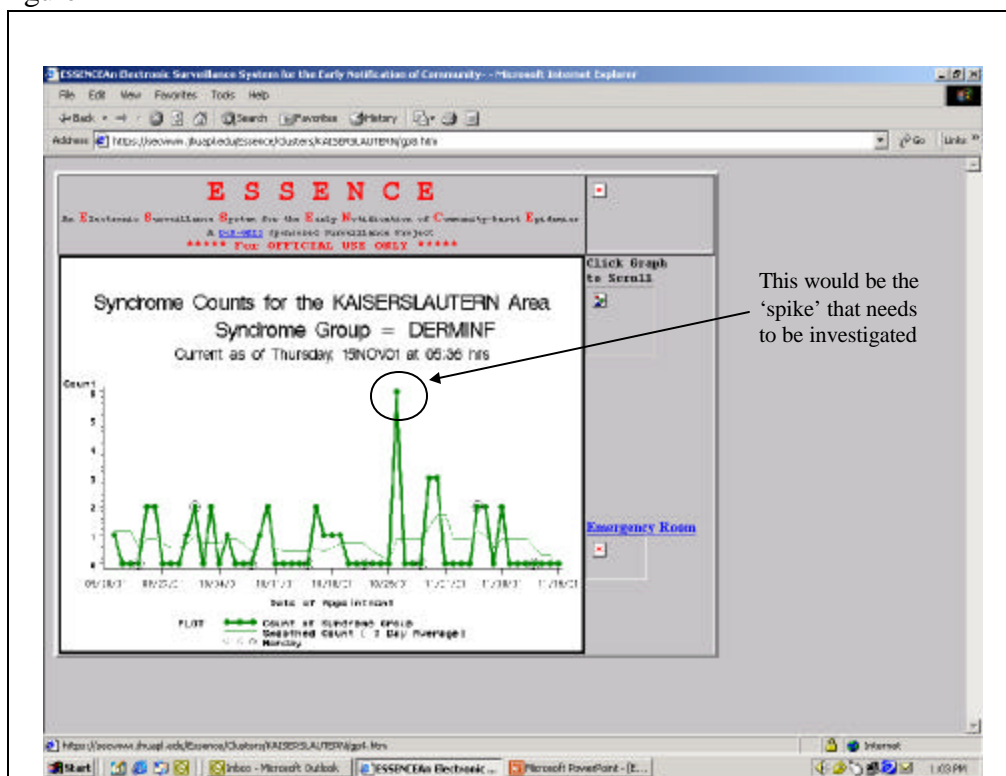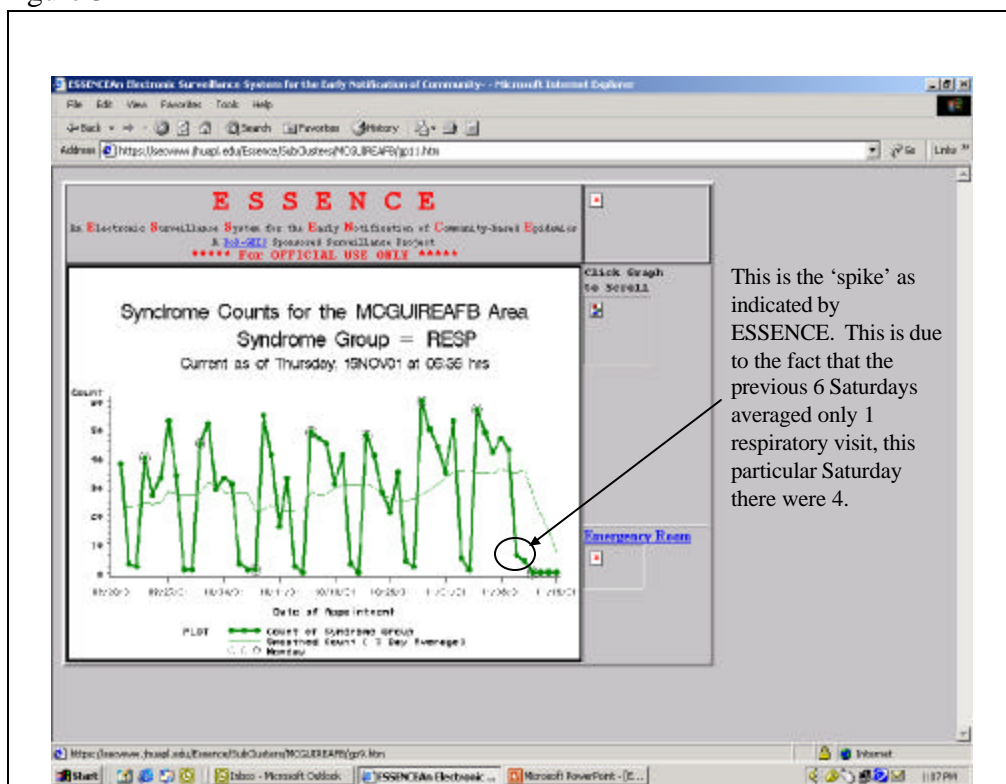
Figure 2

This would be the 'spike' that needs to be investigated

Figure 3

This is the 'spike' as indicated by ESSENCE. This is due to the fact that the previous 6 Saturdays averaged only 1 respiratory visit, this particular Saturday there were 4.

ESSENCE Dictionary:

syndrome groups: a collection of ICD-9 codes used to categorize visits into one of 7 organ-system groups of diagnoses. The listing of ICD-9 codes is attached (or available from AFIERA/RSRH)

Cluster: a *geography-based* grouping of MTFs, generally within a 100-mile radius.

Sub-cluster: a single MTF

Ratio: the number of counts for a specific syndrome group divided by the mean-plus-2-standard-deviations for that syndrome group. All values are specific to a MTF or cluster and specific to a day.

Example: Say today is Thursday the 1st of November. ESSENCE counts the number of visits coded with ICD-9 codes in each of the syndrome groups from each MTF over the previous 6 Wednesdays, starting with 24 October and going back 6 weeks. For each syndrome group and for each MTF, a specific mean and standard deviation are calculated. A threshold value is calculated by adding the mean and 2 standard deviations. This value becomes the denominator and each MTF's count for that day is the numerator. This "ratio" is used as a threshold.